

RECENT INFORMATION CONCERNING SOUTH AFRICAN
FERNS AND THEIR DISTRIBUTION.

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Plates IV., V.

When in 1892 I prepared a handbook on "The Ferns of South Africa," I carefully examined practically all the herbarium material available in South Africa, and with some assurance ended the Preface with these words: "I do not anticipate that many more species of ferns will ever be found in Cape Colony, but the whole region north of the Orange, Vaal, and Umfolozi Rivers is still, botanically, almost a *terra incognita*, and doubtless contains many still unrecorded species."

Further on it is stated, "It would be most misleading to say that the species which have been recorded from the Orange Free State, Transvaal, Kalihari, Matabeleland, and Mashonaland are all that exist in them, or even in any way representative of what does exist in them; and the records from these parts are merely given here as a quota towards the much fuller knowledge of these districts which another decade will likely give us. A more correct definition of the area which has been in any measure satisfactorily examined would restrict it to a belt of country, less than 100 miles wide, stretching all round the coast from the mouth of the Orange River to the northern border of Natal—1,500 miles or thereby. To this might be added the Karroo region, which is known to have only a very limited number of species of ferns, and some of these peculiar to it."

Further investigation has proved this to be the case. The northern colonies have proved much richer in ferns than the previous lists indicated; the coast colonies remain nearly as they were.

After an interval of thirteen years the additional species of ferns and fern allies to be recorded from Cape Colony, Natal, and Zululand, taken collectively, number only seven, viz., *Adiantum sulphureum*, *Nephrolepis exaltata*, *Lygodium scandens*, *Ophioglossum nudicaule*, *Ophioglossum lusitanicum*, *Lycopodium dacrydioides*, and *Isoetes Wormaldii*, and no proof has come to hand that any species then described was included in error, or should not hold specific

rank. New localities have been noted, extending somewhat the range of many other species, and admitting them into regions where they were formerly unrecorded, but otherwise I have no alteration to make in regard to that area.

But with regard to the Orange River Colony, Transvaal, and Rhodesia the case is different. The development and settlement of these colonies, and the more easy access to them by rail, has given opportunity for botanical collecting which did not previously exist, and though their fern floras are still by no means thoroughly known, the collections in hand yield data worth record as a guide to collectors, and a further contribution toward a more complete list than is yet possible. It is probable also that many specimens collected in these upper colonies, especially during the Boer War, found their way to Europe, and that the material there tells more than does that which I have seen.

The geographical area dealt with in "The Ferns of South Africa" was nominally that part of continental Africa lying south of the tropic of Capricorn. This included the Transvaal but only part of Rhodesia, and the latter was only represented by bare lists of about 30 species.

Railway development and present political boundaries, as well as the United South Africa of the future, all render it desirable that South Africa, as a fern district, should be extended northward so as to include the whole of Rhodesia as well as the adjacent Portuguese country south of the Zambesi. From the latter, which is doubtless rich in ferns, I have as yet no specimens or records, and in this respect the present list is certainly incomplete. Species probably belonging to that area and northward extend into Rhodesia and the Transvaal, and also into Natal, but their presence in Portuguese country can only be assumed. The Transvaal contains two distinct climatic conditions, the one dry and cold, corresponding in its fern flora with the Orange River Colony and Upper Karroo, while the other is moist and warm and includes tropical species, some of which do not extend further south.

Rhodesia has also two climates, the dry corresponding with that of the Transvaal and Bechuanaland, the other the moist, warm climate which the coastward portions of the Transvaal and Natal enjoy, and which also extends northward, introducing in Zambesia many tropical species of which the distribution there and northward is not yet definitely ascertained.

The Orange River Colony is hardly a fern country, being mostly dry and unfavourable, but in the north-eastern portion, and especially where it meets Natal and Basutoland, there are fern-kloofs

from which I have had 19 species, and probably the list will yet be much extended.

In consideration of the numerous additional species recorded from the Transvaal, Rhodesia, and Orange River Colony, it has been considered advisable to make this not only a new check-list for the whole of South Africa, but also a full record of localities for these upper colonies, according to present information, including, for convenience, such localities as were recorded in "The Ferns of South Africa," together with what have since been ascertained. It has also been decided to note therein such extension of distribution in Cape Colony and Natal as is worthy of record, though not to repeat the Cape and Natal localities previously well worked up.

The arrangement into districts has been as formerly, viz. : (1) Cape, Western ; (2) Cape, Eastern ; (3) Kaffraria ; (4) Natal ; (5) Orange River Colony ; (6) Transvaal ; (7) Rhodesia ; and for a few of which the exact habitat is not ascertained Zambesia is also given, as indicating localities probably in Rhodesia, but also possibly north of the Zambesi, or in Portuguese territory.

Madagascar has not been dealt with here, and it is remarkable that though an enormous number of new species have during recent years been found in Madagascar, the ferns and fern-allies of continental South Africa, in so far as I have seen them, have all belonged to previously described species, with the exception of two, viz., *Isoetes Wormaldii* from East London, and *Davallia Hollandii* from Rhodesia.

The Transvaal localities formerly recorded were mostly from the collections of Sanderson, Burke, Zeyher, Maclea, Ayres, and Bolus ; and those from Rhodesia from the collections of Oates, Waller, Sir John Kirk, and Ffolliott-Darling.

Since then Mr. R. Schlechter, Mr. Eastwood, and Mr. J. Burt-Davy have sent considerable contributions from the Transvaal ; Mr. W. A. Quail sent a collection from Ficksburg, Orange River Colony ; Mr. B. A. Holland (Rondebosch) made a very complete collection of Rhodesian ferns in 1904 ; Mrs. Bennett made a fine collection from the neighbourhood of Umtali, which was shown at the Capetown Exhibition this year, and to which she has since added many specimens ; Mr. G. Richards, M.L.A. (Natal), and Mr. Allen, of Rhodesia, collected at the Victoria Falls in 1904 ; Mr. H. Marshall-Hole, C.C. and R.M., Salisbury, sent specimens from his neighbourhood in 1894, and many others have made smaller Rhodesian contributions ; while in Cape Colony Mr. H. G. Flanagan, F.L.S., has continued to collect what was new to him or not recorded before, and Dr. Bolus and Dr. Marloth have also been adding. My own collections have been made in the Cape Colony, Natal, Zululand, Transvaal, and

Orange River Colony, but without touching the best parts of the Transvaal or any part of Rhodesia.

I have also recently inspected the Government Herbarium of Natal, from which Mr. J. M. Wood, A.L.S., sent me a very full set when my previous work was in hand, but which now contains several additional items of interest. Other public and private herbaria in South Africa are stated by their owners or curators to contain little additional material of this kind since last I examined them.

The following list is compiled from specimens which have passed through my hands, or from reliable records, and shows a total of 212 species, comprising 186 ferns and 26 fern-allies. Natal is the district having the highest number of recorded species (147); probably this is accounted for by its having warm coast and forest as well as cold mountain regions, and possibly also through its having had closer investigation than the others. Records in hand show the distribution to be as follows:—

	Not recorded elsewhere in South Africa.	Total.
Cape Colony, Western Districts	17 species	95 species
Cape Colony, Eastern Districts	2	86
Cape Colony, Kaffraria (including Transkei)	2	108
Natal	15	147
Transvaal	7	90
Rhodesia	11	86
Zambesia	15	20
Orange River Colony	1	19
Cape Colony, West and East	20	113
Cape Colony, East and Kaffraria.....	4	115
Kaffraria and Natal	20	152
Natal and Transvaal	28	161
Transvaal and Rhodesia.....	21	129
Rhodesia and Zambesia.....	26	105
West, East, and Kaffraria	22	138
East, Kaffraria, and Natal	25	155
Kaffraria, Natal, and Transvaal	40	165
Natal, Transvaal, and Rhodesia	55	172
Transvaal, Rhodesia, and Zambesia	36	145
Natal, Transvaal, Rhodesia, and Zambesia	72	188

Common to West, East, Kaffraria, Natal, Transvaal, and Rhodesia, 25 species, of which 8 are also recorded from the Orange River Colony.

Several species have been received in imperfect condition, mostly barren, which add at least half a dozen to the present list, though they cannot be identified from the material in hand.

Two genera have been added to the previous list, viz., *Platyserium* and *Lygodium*, the latter being represented by two species. Illustrations of these and several other additions are attached.

Further contributions of specimens will be thankfully received with a view to adding what still remains absent from the present list.

SPECIES CONFINED IN SOUTH AFRICA TO THE RESPECTIVE DISTRICTS OR GROUPS OF DISTRICTS, SO FAR AS PRESENTLY KNOWN.

West.	East.	Kaffraria.	Natal.	Transvaal.	Rhodesia.	Orange River Colony.	Zambesia.	Numbers in attached List of Species.	Number of Species.
×	—	—	—	—	—	—	—	6, 11, 39, 41, 45, 48, 50, 51, 53, 56, 93, 148, 154, 159, 182, 183, 184 ...	17
×	×	—	—	—	—	—	—	31	1
×	×	×	×	—	—	—	—	16, 36, 43, 57, 67, 73, 74, 95, 110, 137, 152, 172, 173, 192, 211 ...	15
×	×	×	×	×	—	—	—	4, 13, 35, 40, 141, 161, 185, 190, 193, 194	10
×	×	×	×	×	×	—	—	20, 44, 59, 66, 72, 75, 82, 83, 90, 97, 102, 117, 139, 143, 171, 181, 187	17
×	×	×	×	×	×	×	—	42, 54, 61, 64, 70, 122, 153, 177 ...	8
×	×	×	×	—	×	×	—	29, 94, 108	3
×	×	×	×	×	—	×	—	1, 76, 151	3
×	×	×	×	—	—	×	—	9	1
×	×	×	×	—	×	—	—	80, 86, 121, 123, 158... ..	5
×	×	×	×	×	—	—	×	37	1
×	×	×	×	—	×	—	×	120	1
×	×	—	×	—	×	—	—	126	1
×	×	—	×	×	—	—	—	170	1
×	×	—	×	—	—	—	—	68, 138... ..	2
×	—	×	×	—	—	—	—	162, 198	2
×	—	×	×	×	—	—	—	212	1
×	—	—	×	—	—	—	—	188, 196, 202	3
×	—	—	—	×	—	—	—	209	1
×	—	—	—	×	×	—	—	46, 106... ..	2
—	×	—	—	—	—	—	—	30, 210... ..	2
—	×	×	×	—	—	—	—	81, 88, 109	3
—	×	×	×	×	—	—	—	78, 96, 113	3
—	×	×	×	—	×	—	—	84	1
—	×	×	×	×	×	—	—	32, 49, 63, 87, 105, 199	6
—	×	—	×	×	—	×	—	186	1
—	×	×	×	×	×	×	—	197	1
—	×	×	—	—	×	—	—	22	1
—	—	×	—	—	—	—	—	78, 208... ..	2
—	—	×	×	—	—	—	—	18, 71, 165	3
—	—	×	×	×	—	—	—	2, 17, 125, 133, 150, 176	6
—	—	×	×	×	×	—	—	15, 65, 119, 124, 157, 189	6
—	—	×	×	—	×	—	—	100, 104, 118, 146, 147	5
—	—	×	—	×	—	—	—	112	1
—	—	×	×	×	—	×	—	111	1
—	—	×	—	—	—	×	—	33	1
—	—	—	×	—	—	—	—	5, 10, 12, 23, 24, 85, 89, 101, 132, 144, 164, 179, 195, 203, 207 ...	15
—	—	—	×	×	—	—	—	14, 19, 52, 155, 174	5
—	—	—	×	×	×	—	—	3, 62, 79, 149	4
—	—	—	×	—	×	—	—	103, 107, 115, 131, 134, 135, 140, 142, 160, 163, 186	11
—	—	—	×	×	—	×	—	156	1
—	—	—	×	×	—	×	—	191	1
—	—	—	—	×	—	—	—	7, 26, 55, 60, 128, 200, 201	7
—	—	—	—	×	×	—	—	25, 98, 175	3
—	—	—	—	—	×	—	—	21, 27, 28, 38, 47, 58, 129, 130, 169, 180, 205	11
—	—	—	—	—	—	×	—	202	1
—	—	—	—	—	—	×	×	8, 34, 68, 91, 92, 99, 114, 116, 127, 136, 145, 166, 167, 178, 204... ..	15
								Total	212

LIST OF SOUTH AFRICAN FERNS AND FERN ALLIES, AND OF SOUTH AFRICAN LOCALITIES.

(Localities recorded in "Ferns of South Africa" and not repeated here are marked F. of S. A.)

1. *Gleichenia polypodioides*, Smith.
West, East, Kaffraria, Natal (F. of S. A.) :—Engcobo Mountains (Flanagan 2714).
Orange River Colony :—Rouxville Dist. Ficksburg (Quail).
Transvaal :—Mamotsinri (Burt-Davy 213).
2. *Gleichenia umbraculifera*, Moore.
Kaffraria and Natal (F. of S. A.) :—Engcobo Mountains (Flanagan 2691).
Transvaal :—Near Lydenburg (Dr. W. G. Atherstone). Pilgrim's Rest (Roe). Mamotsinri (Burt-Davy 209).
3. *Gleichenia dichotoma*, Willd.
Natal (F. of S. A.) :—Near Inchanga (J. M. Wood).
Transvaal :—Mauchsberg to Sabie Valley (Burt-Davy 468).
Haenertsberg (Eastwood).
Rhodesia :—Umtali (Mrs. Bennett, who states that it prefers shady banks overhanging water).
4. *Hymenophyllum rarum*, R. Br.
West (F. of S. A.) :—Sir Lowry's Pass (Schlechter 7838).
East, Kaffraria, and Natal (F. of S. A.).
Transvaal :—Houtbosch, 6,800 feet (Schlechter, mixed in his 4758, *Lycopodium gnidioides*).
5. *Hymenophyllum gracile*, Bory.
Natal (F. of S. A.).
6. *Hymenophyllum obtusum*, Hk. & Arn.
West (F. of S. A.).
7. *Hymenophyllum lineare*, Sw.
Transvaal :—I have seen no South African specimen, but Lady Barkly and Buchanan give "Macamac, Transfield Goldfields, specimens recently sent by Mr. Ayres."
8. *Hymenophyllum ciliatum*, Sw. (= *H. Boryanum*, Willd.).
Rachis broadly winged, frond ciliated and hairy. Differs from *H. obtusum* in having a broad central undivided portion in the lower pinnæ, and in its immersed involucre.
"Zambesi district" (Synopsis Filicum).
9. *Hymenophyllum Tunbridgense*, Smith.
West, East, Kaffraria, and Natal (F. of S. A.).
Orange River Colony (T. Cooper 1045, 1862).

10. *Trichomanes muscoides*, Sw.
Natal (F. of S. A.).
11. *Trichomanes digitatum*, Sw.
Cape (F. of S. A.).
12. *Trichomanes pusillum*, Sw.; var. *quercifolium*, Hk. & Gr.
Natal (F. of S. A.).
13. *Trichomanes pyxidiferum*, Linn.
West, East, Kaffraria, and Natal (F. of S. A.) :—Near Umtata,
3,700 feet (Flanagan 2647).
Transvaal :—Macamac and Pilgrim's Rest (McLea & Herb.
Bolus 3019). Mamotsinri (Burt-Davy 212).
14. *Trichomanes rigidum*, Sw.
Natal (F. of S. A.).
Transvaal :—Drakensberg near Macamac (J. H. McLea).
Mamotsinri, common (Burt-Davy 210).
15. *Cyathea Dregei*, Kunze.
Kaffraria and Natal (F. of S. A.).
Transvaal :—Magalisbergen (Burke; Zeyher 1862). Maca-
mac (McLea). Houtboschberg, 6,700 feet (Schlechter
4460). Barberton Mountains (Burt-Davy 329). Kloofs
everywhere (Burt-Davy 220).
Rhodesia :—Penhalanga (Mrs. Bennett). Umtali (Holland).
Moramballa Mountains (Waller; Livingstone; Kirk).
Many new species of *Cyathea* have recently come from
Madagascar, and a few from Central Africa, including
C. Thomsoni (Bkr. Jour. Bot., 1881, 180), which is very
near *C. Dregei*, from near Lake Nyassa.
Forms of *C. Dregei* occur together in Natal which are
evidently but indescribably different.
16. *Hemitelia capensis*, Br.
West, East, Kaffraria, and Natal (F. of S. A.).
Letters from Rhodesia speak of a tree-fern with tall, slender
stems, but no fertile specimen has come to hand.
17. *Woodsia Burgessiana*, Gerrard.
Kaffraria :—Eastern Province (Lady Barkly). Windvogel-
berg, Cathcart, Nov., 1897 (T. R. Sim). Near Ugie,
5,100 feet (Flanagan 2672).
Natal (F. of S. A.).
Transvaal :—(Lady Barkly). Houtboschberg, 6,500 feet
(Schlechter 4705).
18. *Davallia nitidula*, Kunze.
Kaffraria (F. of S. A.) :—Egossa. E. Pondoland, 1899 (T. R.
Sim). Port St. Johns, 1896 (Flanagan 2470).
Natal (F. of S. A.).

19. *Davallia Spelunca*, Baker.
 Natal and Zululand (F. of S. A.).
 Transvaal :—Magalisberg (Burke ; Zeyher).
20. *Davallia concinna*, Schrad.
 West, East, Kaffraria, Natal (F. of S. A.) :—Port St. John's
 (Flanagan 2468).
 Transvaal :—Houtbosch (Dr. Rehmann 5606). Houtbosch-
 berg, 6,500 feet (Schlechter 4700).
 Rhodesia :—Moramballa (Kirk).
21. *Davallia (Loxoscaphe) Hollandii*, Sim. (new species), Pl. IV.
 Stipe paleaceous, 6 inches long. Frond ovate-deltoid, quadri-
 pinnate, thinly coriaceous, 2 feet long, 12 inches wide
 below the middle, rather narrower to the base and
 gradually less upward. Rachis brown, fibrillose,
 grooved. Pinnæ 6 inches long, 2 inches wide below,
 with a marginal rachis and alternate pinnules, of which
 the lowest is on the upper side. Pinnules 1 inch long,
 $\frac{1}{2}$ inch wide, cut into stalked segments, of which the
 upper are simple and the lower 3-4-fid. Ultimate seg-
 ments pointed, 2-3 lines long, $\frac{1}{2}$ line wide or less, their
 stalks narrower. Segments of barren fronds blunt.
 Sori abundant, lateral, short, flattened, one near the
 base of each ultimate segment; the involucre scarious
 and attached at the base and sides. A beautiful fern,
 resembling a finely cut *Darea*, but with davallioid sori.
 Well worth cultivation.
 Rhodesia :—Near Umtali (Holland ; Mrs. Bennett).
22. *Cystopteris fragilis*, Bernh.
 East (F. of S. A.).
 Kaffraria (F. of S. A.) :—Broughton, Molteno, 6,300 feet
 (Flanagan 1676). Engcobo (Flanagan 2715).
 Rhodesia :—Lo Magundi, near Hanyani River (H. M. Hole).
23. *Lindsaya ensifolia*, Swartz.
 Natal (F. of S. A.).
24. *Adiantum reniforme*, Linn. ; var. *asarifolium*, Willd.
 Natal (F. of S. A.) :—The fertile specimen in the Natal
 Government Herbarium was found among Sanderson's
 plants, without label.
25. *Adiantum caudatum*, Linn.
 Credited to Cape Colony in "Synopsis Filicum," probably in
 error.
 Transvaal (collected by Mr. Todd of Inanda) :—Avoca, Bar-
 berton (Galpin 1244).

- Rhodesia :—Mazoe and Umtali (J. F. Darling). Umtali (Mrs. Bennett ; Mrs. Meikle ; Mrs. Eickhoff ; Holland). Victoria Falls (Holland ; Richards). Zambesi (Waller). A form with winged petioles and stipes is mentioned in "Synopsis Filicum," but is not recorded here.
26. *Adiantum rotundatum*, Kunze.
Transvaal :—Wakkerstroom (Dr. Shaw ; Sim 70).
27. *Adiantum lunulatum*, Burm.
Rhodesia :—Mazoe (J. F. Darling). Victoria Falls (Richards ; Holland). Umtali (Mrs. Bennett). Zambesiland (Oates). A form with winged petioles and stipes is mentioned in "Synopsis Filicum" as collected in South Africa by Drs. Kirk and Welwitsch.
28. *Adiantum Oatesii*, Baker. South Africa only.
Rhodesia :—Matabeleland (Oates). Lo Magundi (J. F. Darling).
29. *Adiantum Capillus-Veneris*, Linn.
West, East, Kaffraria, Natal (F. of S. A.).
Orange River Colony :—Ficksburg (Quail).
Rhodesia :—Mazoe (J. F. Darling). Abundant in every stream in the country (H. M. Hole). Victoria Falls (Holland). Umtali (Mrs. Bennett). Tette (Peters).
Many forms from β major to γ minor are found in all these localities, and connect these varieties by every possible gradation.
30. *Adiantum Paradiseæ*, Baker. South Africa only.
East (F. of S. A.).
31. *Adiantum thalictroides*, Willd.
West, East (F. of S. A.).
32. *Adiantum æthiopicum*, Linn.
East, Natal (F. of S. A.).
Kaffraria (F. of S. A.) :—Bankies, Sterkstroom, 5,000 feet (E. D. Barker). Engcobo, 1896, 3,000 feet (Flanagan 2780).
Transvaal :—Riet-vlei, Belfast (Burt-Davy 1235). Marovuni (Burt-Davy 215). Haenertsberg (Eastwood).
Rhodesia :—Mazoe River (Holland). Mr. Edmond's farm near Salisbury (Holland). Matabeleland (Oates). Umtali, in the hill districts (Mrs. Bennett).
33. *Adiantum sulphureum*, Kaulf.
Kaffraria :—Dordrecht (T. R. Sim). Under rocks on hills near Cala, 1896, 4,000 feet. Well dusted on the under page when young ; less so when mature (Flanagan 2838).

Orange River Colony:—Near Harrismith, not uncommon (J. M. Wood).

34. *Adiantum hispidulum*, Sw.

Fronde nearly similar to that of *A. Oatesii*, but with segments and rachises densely pubescent.

Zambesiland (Synopsis Filicum).

35. *Lonchitis pubescens*, Willd.

West, East, Natal (F. of S. A.).

Kaffraria:—Evelyn Valley, 1894 (J. Leighton). Pondoland (Drège). Port St. John's (Flanagan 2474).

Transvaal:—Haenertsberg (Eastwood).

36. *Hypolepis anthriscifolia*, Presl.

West, East, Kaffraria, Natal (F. of S. A.):—Insinuka, Port St. John's (Flanagan 2477).

37. *Hypolepis Bergiana*, Hk.

West (F. of S. A.):—Zwaartrivier, 600 feet (Schlechter 2375).

East, Kaffraria, and Natal (F. of S. A.).

Transvaal:—Marovuni (Burt-Davy 236). Zambesiland (Synopsis Filicum).

38. *Hypolepis Schimperi*, Sim. (= *Cheilanthes Schimperi*, Hk.).

Fronde tufted, glabrous, subcoriaceous, deltoid, 3 to 4 inches long and broad, quadripinnatifid; ultimate segments linear, entire or toothed. Sori between the lobes, each in a sinus. Evidently an *Hypolepis*. Abyssinia, Usuguru, Shiré Highlands, and Rhodesia.

Rhodesia:—Mazoe and Salisbury, 1893 (J. F. Darling).

Jumbo Mine (Holland). Near Fort Salisbury, 1894, one patch only found (H. M. Hole).

39. *Cheilanthes pteroides*, Sw.

West (F. of S. A.):—Probably recorded in error from Orange Free State and Natal.

(For *Cheilanthes Kirkii*, Hk., see *Pellaea geraniifolia*, var.)

40. *Cheilanthes capensis*, Sw.

West, East, Natal (F. of S. A.).

Kaffraria:—Chumie Forest, Alice (Mrs. Young). Dordrecht Kloof (T. R. Sim).

Transvaal (Lady Barkly).

41. *Cheilanthes depauperata*, Baker.

West (F. of S. A.).

42. *Cheilanthes hirta*, Sw.

West, East, Kaffraria, Bechuanaland, and Natal (F. of S. A.).

Orange River Colony:—Bethulie (T. R. Sim).

Transvaal:—Houtbosch, 5,000 feet (Schlechter 4401).

Schweizer Reneke (Burt-Davy 1670). Elim (Schinz).
Pilgrim's Rest (McLea 40; Bolus 17).

Rhodesia :—Umtali (Mrs. Bennett).

C. hirta, Sw.; var. β . *contracta*, Kunze.

West, East, Kaffraria, Bechuanaland, and Natal (F. of S. A.).

Transvaal :—Johannesburg (Burt-Davy 2122).

43. *Cheilanthes parviloba*, Sw.

West, Kaffraria, and Natal (F. of S. A.).

East (F. of S. A.) :—Grahamstown, 2,200 feet (Schlechter 2726).

44. *Cheilanthes multifida*, Sw.

West, East, Kaffraria, and Natal (F. of S. A.).

Transvaal :—Mamotsinri (Burt-Davy 207).

Rhodesia :—Zambesi (Kirk).

C. multifida, Sw.; var. β . *flexa*, Kunze.

Kaffraria :—Frankfort Hill (T. R. Sim).

Natal :—Newcastle (Buchanan).

Transvaal :—Mamotsinri (Burt-Davy 207).

45. *Cheilanthes induta*, Kunze.

West (F. of S. A.).

46. *Cheilanthes Bolusii*, Baker.

The type specimen of this species in South Africa is only one rather poor young frond in Herb. Bolusianum, returned from Kew after Mr. Bolus had lost the remainder of his specimens in the wreck of the *Windsor Castle*. The description in "Ferns of South Africa" is therefore from insufficient material, but I have since had many specimens of a species which I believe to be *C. Bolusii*, and which shows a variation within itself, especially in connection with age, which necessitates an amended description. This plant I had at first placed under *C. multifida*, Sw., var. β . *flexa*, Kunze, but it is evidently distinct from *C. multifida*. Both species vary in size and with age and atmospheric condition, but are constant as follows :—

C. multifida, Sw. Frond oblong-deltoid, usually twice as long as wide, 3-4 pinnatifid, with a dark-brown polished rachis.

C. Bolusii, Baker. Frond triangular, about as wide as long, 4-pinnatifid; pinnæ unequally deltoid. Rachis dark-brown or almost black, polished.

In both species young fronds are finely cut and very tender, the segment-margins being reflexed, rendering the seg-

ments distant and bead-like during drought or heat. Under moist conditions, however, these are open, flat, and crowded, and when mature densely crowded, brown, and sometimes fully occupied with brown capsules under fringed scarious indusia, the frond then having a totally different appearance from the delicate-green young fronds. In both species the indusium is intra-marginal, as shown in "Ferns of South Africa," Plate XXXI., Fig. 3, though in the revolute state caused by dry atmospheric conditions the green margin is reflexed over and almost or quite hides the scarious indusium.

The Transvaal and Rhodesian specimens are mostly *C. Bolusii*, the Cape and Natal specimens mostly *C. multifida*, Sw., but each occurs beyond these limits. For *C. Bolusii* the following localities are noted:—

West (F. of S. A.).

Transvaal:—Makapans Poort, 4,800 feet, immature (Schlechter 4687). Hautboschberg, 9,000 feet, mature (Schlechter 4459).

Rhodesia:—Umtali (Holland).

47. *Cheilanthes farinosa*, Kaulf.

Frond deltoid or oblong-deltoid, bi-tripinnatifid, 4–8 inches long, 3–5 inches wide, subcoriaceous, glabrous, but coated on the under surface with white or yellowish powder. Africa, Asia, America, and Polynesia.

Rhodesia:—Victoria Falls (Richards; Holland). Matabeleland (Oates).

48. *Pellaea auriculata*, Link.

West (F. of S. A.).

49. *Pellaea geraniæfolia*, Fée (including *Cheilanthes Kirkii*, Hk., which is only a cheilanthoid condition of the same plant in which the sori are not confluent, and which condition it afterwards outgrows.)

East, Kaffraria, and Natal (F. of S. A.).

Transvaal (Herb. Bolus):—Marovuni (Burt-Davy 233).

Rhodesia:—Mngama's Poort (J. Fry). In the walls of the temple at Zimbabwe, June, 1904 (Holland). Umtali (Mrs. Bennett). Morambala Mountains, Zambesia (Kirk).

50. *Pellaea deltoidea*, Baker, and *Pellaea deltoidea*, Baker, var. *laxa*.

West (F. of S. A.).

51. *Pellaea robusta*, Hk.

West (F. of S. A.).

52. *Pellæa pectiniformis*, Baker.
 Natal (F. of S. A.).
 Transvaal (Bolus):—Marovuni, dry rocks, not common
 (Burt-Davy 235).
53. *Pellæa lancifolia*, Baker.
 West (F. of S. A.).
54. *Pellæa consobrina*, Hk.
 West, East, Kaffraria, Natal (F. of S. A.).
 Orange River Colony:—Ficksburg (Quail).
 Transvaal:—Pilgrim's Rest, Macamac Fields (McLea 46).
 Mamotsinri (Burt-Davy 204). Belfast (Burt-Davy
 1238).
 Rhodesia (Oates):—Mazoe and Umtali, 1892 (J. F. Darling;
 Mrs. Bennett).
 (*P. andromedæfolia*, Fée; see "Ferns of South Africa.")
55. *Pellæa Biovini*, Hk.
 Transvaal:—Magalisberg (Zeyher & Burke).
56. *Pellæa Namaquensis*, Baker.
 West (F. of S. A.).
57. *Pellæa involuta*, Baker.
 West, East, Kaffraria, Natal (F. of S. A.).
58. *Pellæa Doniana*, Hk.
 Frond simply pinnate or slightly more divided, oblong-lan-
 ceolate, coriaceous, glabrous except the rachis which is
 pubescent. Pinnæ 8–15 pairs, 2–4 inches long, $\frac{1}{2}$ –1 inch
 wide, shortly stalked, rounded at the base, tapering
 above. Midrib black and polished on the under surface.
 Rhodesia:—Umtali (Mrs. Bennett).
 Zambesia (Synopsis Filicum).
59. *Pellæa hastata*, Link.
 West, East, Kaffraria, Natal. The most common fern.
 Transvaal:—Johannesburg (Burt-Davy 2123). Marovuni
 (Burt-Davy 229). Belfast (Burt-Davy 1245). Barber-
 ton Mountains, Lomatie Valley (Burt-Davy 326).
 Haenertsberg (Eastwood).
 Rhodesia:—Salisbury (H. M. Hole). Umtali (Mrs. Bennett).
 Jumbo Mine (Holland). Zimbabwe Ruins (Holland).
 Moramballa Mountains (Kirk).
- Pellæa hastata*, Link.; var. *macrophylla*.
 Common along with the type in all forests.
- Pellæa hastata*, Link.; var. *glauca*. (Two forms. One usually
 larger, one constantly small.)
 East, Kaffraria, and Natal (F. of S. A.).

Transvaal:—Houtboschberg, 6,000 feet (Schlechter 4431).

Rhodesia:—Mazoe and Salisbury (J. F. Darling; H. M. Hole; Holland). Matabeleland (Fry).

60. *Pellaea leucomelas*, Baker.

Transvaal (F. of S. A.).

61. *Pellaea calomelanos*, Link.

West, East, Kaffraria, and Natal:—Frequent.

Orange River Colony:—Wepener (Harper). Ficksburg (Quail).

Transvaal:—Magalisberg (Zeyher; Burke). Shilouvane (Junod 519). Marovuni (Burt-Davy 231). Crocodile and Magalies Rivers (Burt-Davy 212). Waterval Boven (Burt-Davy 1436).

Rhodesia:—Matoppas, near grave of C. J. Rhodes (Holland). Salisbury (H. M. Hole). Matabeleland (Fry). Umtali (Mrs. Bennett).

62. *Pellaea Burkeana*, Baker.

Natal:—Rare (Wood). Great Noodsberg, Inanda, Umpumulo (Buchanan).

Transvaal:—Magalisberg (Burke).

Rhodesia:—Mazoe and Salisbury (J. F. Darling). Umtali (Holland; Mrs. Bennett). Borrowdale (H. M. Hole). A tasselled form at Salisbury (J. F. Darling).

63. *Pteris longifolia*, Linn.

East, Kaffraria, Natal (F. of S. A.).

Transvaal:—Magalisberg (Burke). Macamac (McLea). Pretoria, Aapie's Poort (Dr. Rehmann 4047). Malmanie Stream (Burt-Davy 69). Selati Goldfields (Junod 1040).

Rhodesia:—Umtali and Mazoe (J. F. Darling; Holland; Mrs. Bennett).

64. *Pteris cretica*, Linn.

West, East, Kaffraria, Natal (F. of S. A.):—Engcobo (Flanagan 2721).

Orange River Colony:—Ficksburg (Quail).

Transvaal:—Magalisberg (Sanderson). Riet-vley, Belfast (Burt-Davy 1237). Haenertsberg (Eastwood).

Rhodesia:—Umtali (Mrs. Bennett). Mazoe (Holland). Borrowdale, near Salisbury (H. M. Hole).

A tasselled form from Upper Umkomaas is in the Natal Government Herbarium.

65. *Pteris quadriaurita*, Retz.

Kaffraria:—Engcobo Mountain, 1896, 4,000 feet (H. G. Flanagan 2779).

Natal :—Frequent.

Transvaal :—Marovuni (Burt-Davy 226). Magalisberg (Zeyher). Drakensberg, near Macamac Goldfields (J. H. McLea 41).

Rhodesia :—Victoria Falls (Richards). Near Salisbury (Holland). Umtali (Mrs. Bennett). Lo Magundi (J. F. Darling).

66. *Pteris flabellata*, Thun.

West, East, Kaffraria, Natal :—Common.

Transvaal :—Magalisberg (Zeyher; Burke; Sanderson). Zoutpansberg, 3,900 feet (Schlechter 4600).

Rhodesia :—Penhalanga (Holland). Umtali (Mrs. Bennett).

67. *Pteris Buchanani*, Baker.

West, East, Kaffraria, Natal (F. of S. A.).

68. *Pteris incisa*, Thun.

West, East, Natal (F. of S. A.).

69. *Pteris longipes*, D. Don.

This belongs to the section *Tripartitæ*, in which the lowest pinnæ are much larger than the others, often nearly equalling the central portion of the tripinnate frond. Baker states ("New Ferns, Annals of Botany," vol. v., 1891), "Further material shows *P. brevisora*, Baker, No. 39 (Synopsis Filicum), which has now been found in Zambesia, to be only a variety of this species, with shorter sori."

70. *Pteris aquilina*, Linn.

West, East, Kaffraria, Natal (F. of S. A.) :—Umgazi River, Port St. John's (Flanagan 2606).

Orange River Colony :—Rouxville (Harper).

Transvaal :—Magalisberg (Sanderson). Athol and Barberton (Burt-Davy 1899 and 256). Shilouvane (Junod 892).

Rhodesia :—Umtali (J. F. Darling). Salisbury, common (H. M. Hole). Near Mount Hampden, a quite glabrous variety (Holland).

71. *Lomaria inflexa*, Kunze.

Kaffraria and Natal (F. of S. A.).

72. *Lomaria attenuata*, Willd.

West, East, Kaffraria, Natal (F. of S. A.).

Transvaal :—Magalisberg (Sanderson; Bolus). Barberton (Burt-Davy 327). Marovuni, Mamotsinri (Burt-Davy 224). Haenertsberg (Eastwood).

Rhodesia :—Umtali (J. F. Darling; Mrs. Bennett).

73. *Lomaria punctulata*, Kunze.
 West, East, Kaffraria, Natal (F. of S. A.):—George, 900 feet
 (Schlechter 2465).
 Var. *Atherstonei*, P. & R.
 East, Kaffraria, Natal (F. of S. A.).
 Var. *intermedia*.
 East and Natal (F. of S. A.).
 Var. *Krebsii*.
 East and Natal (F. of S. A.).
74. *Lomaria procera*, Sprengel.
 West, East, Kaffraria, and Natal (F. of S. A.).
75. *Lomaria Boryana*, Willd.
 West, East, Kaffraria, and Natal (F. of S. A.).
 Transvaal:—Mauchsberg to Falls (Burt-Davy 485). Shilou-
 vane (Junod 881). Marovuni (Burt-Davy 234).
 Haenertsberg (Eastwood).
 Rhodesia:—Umtali (J. F. Darling; Mrs. Bennett).
 A form found at Patillos, Mid Illovo, Natal, has an auricle or
 single pinnule at the base of each pinna.
76. *Blechnum australe*, Linn.
 West, East, Kaffraria, Natal (F. of S. A.):—Broughton,
 Molteno, 6,300 feet (Flanagan 1684).
 Orange River Colony:—Ficksburg (Quail).
 Transvaal:—Magalisberg (Sanderson). Marovuni (Burt-
 Davy 221). Haenertsberg (Eastwood).
77. *Blechnum remotum*, Presl.
 Kaffraria (F. of S. A.).
78. *Asplenium Kraussii*, Moore.
 East, Kaffraria, Natal (F. of S. A.):—Engcobo (Flanagan
 2722).
 Transvaal:—(Lady Barkly).
79. *Asplenium Sandersoni*, Hk.
 Natal (F. of S. A.).
 Transvaal:—Houtbosch, 6,800 feet (Schlechter 4760).
 Rhodesia:—Umtali (Mrs. Bennett). Moramballa Mountains
 (Waller).
80. *Asplenium trichomanes*, Linn.
 West, East, Kaffraria, Natal (F. of S. A.):—Broughton,
 Molteno (Flanagan 1677).
 Rhodesia:—Limestone caves at Sinoia, Lo Magundi, Han-
 yani River (H. M. Hole).
81. *Asplenium ebeneum*, Ait.
 East, Kaffraria, Natal (F. of S. A.).

82. *Asplenium monanthemum*, Linn.
 West, East, Kaffraria, Natal (F. of S. A.) :—Broughton,
 Molteno, 6,300 feet (Flanagan 1678).
 Transvaal :—Haenertsberg (Eastwood).
 Rhodesia :—Umtali, not common (Mrs. Bennett).
 Specimens from Perie Forest show upper pinnæ Dareoid.
83. *Asplenium erectum*, Bory.
 Var. A. *lunulatum*.
 West, East, Kaffraria, Natal (F. of S. A.).
 Rhodesia :—Victoria Falls (Holland).
 Var. β . *minor*.
 Kaffraria (F. of S. A.).
 Var. C. *erectum*.
 West, East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Macamae (McLea). Haenertsberg (East-
 wood).
 Rhodesia :—Umtali (Mrs. Bennett).
 A frond from Brown's bush, Toise River, has a bud on
 the stipe at the lowest pinnule.
 Var. D. *brachyotus*.
 Natal (F. of S. A.).
 Var. E. *Zeyheri*.
 East, Kaffraria, Natal (F. of S. A.).
 Var. F. *lobatum*.
 East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Houtboschberg, 6,000 feet (Schlechter 4466).
 Mamotsinri (Burt-Davy 205). Haenertsberg (East-
 wood).
 Rhodesia :—Umtali (Holland ; Mrs. Bennett).
84. *Asplenium varians*, Hk. & Gr.
 East, Kaffraria, Natal (F. of S. A.).
 Rhodesia :—Umtali (J. F. Darling).
85. *Asplenium Gueinzianum*, Mett.
 Natal (F. of S. A.).
86. *Asplenium protensum*, Schrad.
 West, East, Kaffraria, Natal (F. of S. A.).
 Rhodesia :—Umtali (Holland ; Mrs. Bennett).
A. protensum, Schr. ; var. *bipinnatifidum*.
 East and Kaffraria (F. of S. A.).
87. *Asplenium anisophyllum*, Kunze.
 East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Houtbosch (Dr. Rehmann 5589). Haenerts-
 berg (Eastwood).
 Rhodesia :—Umtali (J. F. Darling ; Mrs. Bennett).

88. *Asplenium prionitis*, Kunze.
 East, Kaffraria, Natal (F. of S. A.):—Port St. John's
 (Flanagan 2474).
89. *Asplenium serra*, L. & F.; var. *natalensis*.
 Natal (F. of S. A.).
90. *Asplenium gemmiferum*, Schr.
 West, East, Kaffraria, Natal (F. of S. A.).
 Transvaal:—Marovuni (Burt-Davy 228).
 Rhodesia:—Umtali (Holland; Mrs. Bennett).
A. gemmiferum, Schr.; var. *flexuosum*.
 East and Kaffraria (F. of S. A.).
 Rhodesia:—Umtali (Mrs. Bennett).
A. gemmiferum, Schr.; var. *discolor*.
 West, East, Kaffraria, Natal (F. of S. A.).
91. *Asplenium falcatum*, Lam.
 Frond coriaceous, glabrous, 12 inches long, 4–6 inches wide,
 simply pinnate; the pinnæ lobed one-third down and
 the lobes sharply toothed. Zambesiland (Synopsis
 Filicum).
92. *Asplenium pumilum*, Sw.
 Frond herbaceous, deltoid, 4–6 inches long and wide, sinuate
 above, bipinnate below; lower pinnæ most developed on
 the lower side. Zambesiland (Kirk).
93. *Asplenium Rawsoni*, Baker.
 West (F. of S. A.).
94. *Asplenium Adiantum-nigrum*, Linn.
 West, East, Kaffraria, Natal (F. of S. A.).
 Orange River Colony:—Ficksburg (W. A. Quail).
 Rhodesia:—Umtali (J. F. Darling).
95. *Asplenium solidum*, Kunze.
 West, East, Kaffraria, Natal (F. of S. A.).
96. *Asplenium cuneatum*, Lam.
 East, Kaffraria, Natal (F. of S. A.).
 Transvaal:—Marovuni (Burt-Davy 217, 239).
 Var. B. *splendens*.
 East, Kaffraria, Natal (F. of S. A.).
 Var. C. *angustatum*.
 East (F. of S. A.).
97. *Asplenium furcatum*, Thun.
 (Baker now states that an earlier name is *A. præmorsum*, Sw.)
 West, East, Kaffraria, Natal (F. of S. A.):—George, 900 feet
 (Schlechter 2364).
 Transvaal:—Magalisberg (Sanderson). Mamotsinri (Burt-

Davy 211). Crocodile and Magalies Rivers (Burt-Davy 199). Haenertsberg (Eastwood).

Rhodesia:—Salisbury (J. F. Darling). Borrowdale (H. M. Hole). Umtali (Holland; Mrs. Bennett).

A. furcatum, Thun. ; var. *tripinnatum*.

East, Kaffraria, Natal (F. of S. A.).

Transvaal:—Barberton Mountains (Burt-Davy 330). Mamotsinri and Marovuni (Burt-Davy 208, 216).

Rhodesia:—Umtali (J. F. Darling; Mrs. Bennett).

98. *Asplenium cicutarium*, Swartz.

Rhodesia:—Umtali (J. F. Darling; Mrs. Bennett).

Var. *Abyssinicum*, Fèe.

Transvaal:—Magalisberg (Sanderson).

99. *Asplenium Mannii*, Hk.

A small, thinly herbaceous dareoid species, with deltoid-lanceolate fronds 1–2 inches long, the upper pinnae simple, the lower dichotomously forked. Zambesia (Synopsis Filicum).

100. *Asplenium Dregeanum*, Kunze.

Kaffraria and Natal (F. of S. A.) :—Port St. John's, 1,200 feet (Flanagan 2472).

Rhodesia:—Umtali (Darling).

101. *Asplenium Thunbergii*, Kunze.

Natal (F. of S. A.).

(*Asplenium flaccidum*, Forst. ; see F. of S. A.)

102. *Asplenium rutæfolium*, Kunze.

East, West, Kaffraria, Natal:—Frequent.

Transvaal:—Houtbosch (Dr. Rehmann 5584). Houtboschberg, 6,000 feet (Schlechter 4463). Marovuni (Burt-Davy 237). Haenertsberg (Eastwood).

Rhodesia:—Umtali (Holland; Mrs. Bennett).

103. *Asplenium filix-fœmina*, Bernh.

Natal (F. of S. A.).

Rhodesia:—Penhalanga Forest (Mrs. Bennett). Umtali (Holland).

104. *Asplenium Schimperii*, A. Br.

Kaffraria:—Chumie (Mrs. Young).

Natal (F. of S. A.).

Rhodesia:—Salisbury (J. F. Darling).

105. *Asplenium aspidioides*, Schl.

East, Kaffraria, Natal (F. of S. A.).

Transvaal:—Haenertsberg (Eastwood).

Rhodesia:—Umtali (Darling; Holland).

(*Asplenium polypodioides*, Mett. ; see F. of S. A.).

106. *Actiniopteris radiata*, Link.
 Griqualand and Bechuanaland (F. of S. A.).
 Transvaal:—Magalisberg (Burke & Zeyher 532; Todd;
 Zeyher No. 1874). Limpopo (H. M. Barber). Near
 Eureka City, Barberton (Dr. Vowel 1888).
 Rhodesia:—Devil's Kantour, Tati (J. Fry 1887). Salisbury
 (Darling). Fairly common, Salisbury and Burrowdale
 (H. M. Hole). Umtali (Mrs. Bennett).
107. *Didymochlæna lunulata*, Desv.
 Natal (F. of S. A.).
 Rhodesia:—Umtali (Mrs. Bennett).
108. *Aspidium aculeatum*, Sw.; var. *pungens*.
 East, West, Kaffraria, Natal:—Abundant everywhere.
 Orange River Colony:—Ficksburg (Quail).
 Rhodesia:—Umtali (Holland; Mrs. Bennett).
109. *Aspidium luctuosum*, Kunze.
 East, Kaffraria, Natal (F. of S. A.):—Engcobo Mountain
 (Flanagan 2781).
110. *Aspidium capense*, Willd.
 West, East, Kaffraria, Natal (F. of S. A.).
111. *Aspidium aristatum*, Sw.
 Kaffraria and Natal (F. of S. A.).
 Transvaal:—Macamac Gold Fields (J. H. McLea, No. 7).
 Zambesia:—(*Fide* Kuhn, *Filices Africanæ*, 209.)
112. *Aspidium Macleayi*, Baker.
 Kaffraria:—Bazija, Transkei (Rev. R. Baur; MacOwan).
 Transvaal:—Wet kloofs, Pilgrim's Rest, Drakensberg (J. H.
 McLea, No. 34; Herb. Bolus 3030). Macamac (Ayres,
 Buchanan's List, No. 3, p. 30).
113. *Aspidium falcatum*, Sw.
 East, Kaffraria, Natal (F. of S. A.):—Chenkwe Mountain,
 near Umtata, 4,000 feet (Flanagan 2648).
 Transvaal:—Macamac (McLea, No. 6).
114. *Nephrodium patens*, Desv.
 Differs from the common *N. Bergianum* in the lower pinnæ
 being not reduced. Zambesiland (Synopsis Filicum 262).
115. *Nephrodium albo-punctatum*, Desv.
 Natal (F. of S. A.).
 Rhodesia:—Borrowdale (H. M. Hole). Salisbury (Holland;
 Darling). Umtali (Mrs. Bennett, who states that it is
 scented).
 (Baker now states that its oldest name is *Polypodium pecti-*
natum, Forsk.)

116. *Nephrodium Zambesiaccum*, Baker ("New Ferns," p. 58).
Fronds bipinnate, large, somewhat hairy. Lower pinnæ not reduced, 12 inches long, $1\frac{1}{4}$ inches wide. Segments distinct, narrow, entire. Veinlets numerous, simple.
Zambesi highlands (Buchanan).
117. *Nephrodium Bergianum*, Bkr.
East, West, Kaffraria, Natal:—Abundant.
Transvaal:—Elim (Dr. Hans Schinz). Shilouvane (Junod 650).
Rhodesia:—Umtali (J. F. Darling). Penhalanga (Mrs. Bennett; Holland). Victoria Falls (Richards).
118. *Nephrodium mauritianum*, Fée.
Kaffraria and Natal (F. of S. A.).
Rhodesia:—Lo Magundi (J. F. Darling). Mazoe and Victoria Falls (Holland).
119. *Nephrodium molle*, Desv.
Kaffraria and Natal (F. of S. A.).
Transvaal (Buchanan; Lady Barkly).
Rhodesia:—Matabeleland (Oates). Zambesia (Kirk).
120. *Nephrodium unitum*, R. Br.
West, East, Kaffraria, Natal (F. of S. A.).
Rhodesia:—Small island on the Zambesi (Holland). Zambesi and Luabo Rivers (Kirk).
N. unitum, R. Br.; var. *propinquum*.
Zambesi northward.
121. *Nephrodium thelypteris*, Desv.
West, East, Kaffraria, Natal (F. of S. A.).
Rhodesia:—Mazoe and Umtali (J. F. Darling). Penhalanga (Holland). Umtali (Mrs. Bennett).
122. *Nephrodium filix-mas*, Rich.; var. *elongatum*.
West, East, Kaffraria, Natal (F. of S. A.):—Broughton, Molteno (Flanagan 1682).
Orange River Colony:—Ficksburg (Quail).
Transvaal:—Macamac (McLea). Marovuni (Burt-Davy 227).
Rhodesia:—Umtali and Lo Mogundi, 9 feet high (Darling).
Umtali (Mrs. Bennett).
Without having seen the forms connecting this with the normal *N. filix-mas* I cannot say that it does not belong there, but as a South African fern it belongs to a different group—that of *N. spinulosum*—and I consider the name *N. elongatum*, Hk. & Gr., ought to be restored.

123. *Nephrodium inæquale*, Hk.
 West, East, Kaffraria, Natal (F. of S. A.).
 Rhodesia:—Lo Magundi (Darling). Umtali (Holland).
 Moramballa Mountains (Kirk).
124. *Nephrodium athamanticum*, Hk.
 Kaffraria and Natal (F. of S. A.).
 Transvaal:—Macamac (McLea). Magalisbergen (Sanderson).
 Shilouvane (Junod 896). Marovuni, rare (Burt-Davy 219).
 Belfast (Burt-Davy 1987).
 Rhodesia:—Near the Jumbo Mine (Holland). Umtali (Mrs. Bennett).
125. *Nephrodium Buchanani*, Baker.
 Kaffraria and Natal (F. of S. A.):—Chumie, Kaffraria (Mrs. Young).
 Transvaal:—Pilgrim's Rest (J. H. McLea). Haenertsberg (Eastwood).
126. *Nephrodium catopteron*, Hk.
 West, Kaffraria, Natal (F. of S. A.).
 Rhodesia:—Near Umtali, June, 1904 (Mrs. Bennett; Holland).
127. *Nephrodium Lastii*, Baker ("New Ferns," p. 64).
 Fronds large, herbaceous, decomposed, glabrous. Lower pinnæ a foot long, oblong-lanceolate; pinnules lanceolate, segments $\frac{1}{4}$ inch wide, cut into oblong toothed lobes.
 Zambesia:—Namuli Mukua Country (J. T. Last).
128. *Nephrodium crenatum*, Sim.
 Transvaal (Bulus). Macamac (Ayles).
129. *Nephrodium cicutarium*, Baker.
 Rhodesia:—Moramballa Mountains (Kirk; Waller). Umtali (Darling; Holland; Mrs. Bennett).
130. *Nephrolepis cordifolia*, Presl. (= *N. tuberosa*, Hk.).
 Crown suberect, with numerous long, wiry, or in places tuberous runners, from which new plants arise. Frond 1-4 feet long, $1\frac{1}{2}$ -2 inches wide, mostly of equal width, glabrous except the rachis which has numerous white scales when young which become brown with age if persistent. Pinnæ close, simple, one-third inch wide, 1- $1\frac{1}{2}$ inches long, slightly crenate, cordate at the base, auricled or lobed on the upper side at the base, the auricles overlapping on the under side of the rachis. Sori half-way between the midrib and the edge. Said by Baker to differ from *N. exaltata* by its narrower frond, close blunt pinnæ and submedial sori.

Rhodesia :—Umtali (J. F. Darling 20). Victoria Falls (Richards ; Holland). Matabeleland (Oates).

131. *Nephrolepis exaltata*, Schott.

The difference between this and *N. cordifolia* are mentioned under that species, but I fail to distinguish the two as species either in the few wild specimens or in cultivation in Natal. Several cultural forms are in cultivation, and it seems not improbable that the specimen in Natal Government Herbarium, No. 7581, from Lower Umzimkulu, collected by Dr. Dimock Brown in 1897, was from an escape, as no one else has found it in Natal. Baker, however, includes both *N. cordifolia* and *N. exaltata* among the plants collected by Oates in Matabeleland.

132. *Nephrolepis biserrata*, Schott.

Natal (F. of S. A.).

133. *Oleandra articulata*, Cav.

Kaffraria :—Port St. John's, 1896, 100 feet (H. G. Flanagan 2471).

Natal (F. of S. A.).

Transvaal :—Magalisberg (Zeyher ; Burke 530).

134. *Polypodium proliferum*, Presl.

Natal (F. of S. A.).

Rhodesia :—Hunyani River, 1894 (J. F. Darling). Banks of Mazoe (Holland). Umtali (Mrs. Bennett), with a frond 4 feet long, 6 inches wide below, but the upper half with rather distant short alternate pinnules 1 inch long, $\frac{1}{2}$ inch wide. Nine axils have buds, some developed into fronds 1 foot long. Mrs. Bennett writes that it is a lovely drooping fern, and most effective in hanging baskets.

135. *Polypodium unitum*, Hk.

Natal (F. of S. A.).

Rhodesia :—Umtali (Mrs. Bennett).

136. *Polypodium parvulum*, Bory.

Fronds subcoriaceous, ultimately naked, pinnate, 4–6 inches long, $\frac{1}{2}$ inch wide ; pinnæ 1 line wide. Sori 2–6 to a pinna, medial.

Zambesiland (Synopsis Filicum).

137. *Polypodium vulgare*, Linn.

West, East, Kaffraria, Natal (F. of S. A.).

138. *Polypodium ensiforme*, Thun.

West, East, Natal (F. of S. A.).

139. *Polypodium incanum*, Swartz.
 West, East, Kaffraria, Natal (F. of S. A.) :—Engcobo (Flanagan 2716).
 Transvaal :—Macamac (McLea). Everywhere, Marovuni (Burt-Davy 218).
 Rhodesia :—On a tree in the temple of Zimbabwe, June, 1904 (Holland). Mount Moramballa (Kirk).
140. *Polypodium phymatodes*, Linn.
 Natal (F. of S. A.).
 Rhodesia :—Umtali (Mrs. Bennett). Zambesia (Kirk).
141. *Polypodium lineare*, Thun.
 Kaffraria and Natal (F. of S. A.).
Polypodium lineare, Th. ; var. *Schraderi*.
 West, East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Marovuni (Burt-Davy 288).
142. *Polypodium normale*, Don.
 Natal (F. of S. A.).
 Rhodesia :—Umtali (Mrs. Bennett).
143. *Polypodium lanceolatum*, Linn.
 West, East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Marovuni (Burt-Davy 230). Embabaam, Swaziland (Burt-Davy 2796).
 Rhodesia :—Umtali (Mrs. Bennett). Moramballa Mountains (Kirk ; Waller).
P. lanceolatum, Linn. ; var. *sinuatum*.
 This appears from description to correspond with the Columbian *P. leucosporum*, Klot. ; see Baker's "New Ferns," p. 94.
 East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Houtboschberg, 6,300 feet (Schlechter 4452).
144. *Polypodium lycopodioides*, Linn.
 Natal (F. of S. A.).
P. lycopodioides, Linn. ; var. *Mackenii*, Bkr.
 Natal (F. of S. A.).
145. *Polypodium fissum*, Baker.
 From description this appears to me to be too near *P. africanum*, the main difference being that this has ferruginous tomentum on the under surface of the frond, while that of *P. africanum* is said to be nearly white. But, as mentioned in "Ferns of South Africa," that of *P. africanum* is at first rufous and afterwards nearly white, at least in some localities.
 Baker includes *P. fissum* from Zambesi highlands ("New Ferns," p. 90).

146. *Polypodium africanum*, Mett.
 Kaffraria and Natal (F. of S. A.).
 Rhodesia :—Umtali (Holland ; Mrs. Bennett).
147. *Polypodium irioides*, Lam.
 Kaffraria and Natal (F. of S. A.) :—Port St. John's (Flanagan 2469).
 Rhodesia :—Near Massi Kessi (Holland). Zambesiland (Kirk). Umtali (Mrs. Bennett).
148. *Nothochlæna Rawsoni*, Pappe.
 West (F. of S. A.)
149. *Nothochlæna inæqualis*, Kunze.
 Natal (F. of S. A.).
 Transvaal :—Magalisberg (Burke ; Zeyher). Marovuni (Burt-Davy 238). Near Standerton (Rehmann 6739).
 Rhodesia :—Salisbury (J. F. Darling). Under granite rocks near Salisbury (Holland).
150. *Nothochlæna Buchanani*, Baker.
 Kaffraria :—Port St. John's, 1896 (Flanagan 2580). Toise River (Dr. Brownlee).
 Natal (F. of S. A.).
 Transvaal :—Marovuni (Burt-Davy 225).
151. *Nothochlæna Eckloniana*, Kunze.
 West, East, Kaffraria, Natal (F. of S. A.).
 Orange River Colony :—Ficksburg (Quail).
 Transvaal :—Magalisberg (Burke). Trigardsfontein (Dr. Rehmann). Houtboschberg, 6,800 feet (Schlechter 4704).
152. *Gymnogramme totta*, Schl.
 West, East, Kaffraria, Natal (F. of S. A.).
153. *Gymnogramme cordata*, Schl.
 West, East, Kaffraria, Natal (F. of S. A.).
 Orange River Colony :—Hebron (Flanagan 1675).
 Transvaal :—Magalisberg (Burke). Crocodile and Magalies Rivers (Burt-Davy 208).
 Rhodesia :—Lo Magundi and Fort Salisbury (J. F. Darling).
- G. cordata*, Schl. ; var. *namaquensis*.
 North-West (F. of S. A.).
 Rhodesia :—Common round Salisbury (H. M. Hole).
- G. cordata*, Schl. ; var. *bipinnata*.
 West (F. of S. A.).
154. *Gymnogramme leptophylla*, Desv.
 West (F. of S. A.).

155. *Gymnogramme ochracea*, Presl.
 Natal (F. of S. A.).
 Transvaal (Herb. Bolus).
156. *Gymnogramme argentea*, Mett.
 Natal (F. of S. A.).
 Transvaal :—Drakensberg, near Macamac Goldfields (McLea).
G. argentea, Mett. ; var. *aurea*.
 Natal (F. of S. A.).
 Orange River Colony (Buchanan).
 Transvaal :—Magalisberg (J. H. McLea).
157. *Gymnogramme lanceolata*, Hk.
 Kaffraria and Natal (F. of S. A.).
 Transvaal :—(McLea). Marovuni (Burt-Davy 280).
 Rhodesia :—Umtali (Mrs. Bennett).
158. *Vittaria lineata*, Sw.
 West, East, Kaffraria, Natal (F. of S. A.).
 Rhodesia :—Zambesiland (Synopsis Filicum).
 (*Monogramme graminea*, Schk. ; see "Ferns of South Africa.")
159. *Acrostichum conforme*, Sw.
 West (F. of S. A.).
160. *Acrostichum latifolium*, Swartz.
 Natal (F. of S. A.).
 Rhodesia :—Umtali (Mrs. Bennett).
161. *Acrostichum viscosum*, Swartz.
 West, East, Kaffraria, Natal (F. of S. A.).
 Transvaal :—Pilgrim's Rest (J. H. McLea 54 ; Bolus 1730).
 Marovuni, rare (Davy 290). Haenertsberg (Eastwood).
A. viscosum, Sw. ; var. *rupestre*.
 West and Kaffraria (F. of S. A.).
 Transvaal :—Pilgrim's Rest (J. H. McLea).
162. *Acrostichum hybridum*, Bory.
 West, Kaffraria, Natal (F. of S. A.).
163. *Acrostichum Aubertii*, Desv.
 Natal (F. of S. A.).
 Rhodesia :—Mount Zomba, Zambesia (Kirk).
164. *Acrostichum spathulatum*, Bory.
 Natal (F. of S. A.).
165. *Acrostichum tenuifolium*, Baker.
 Kaffraria and Natal (F. of S. A.).
166. *Acrostichum punctulatum*, Sw.
 Fronds pinnate, dimorphous, the fertile being similar to but
 much smaller than the barren. Barren frond 1-2 feet
 long, up to 12 inches wide, with a terminal pinna and on

each side 1 to 8 lateral pinnæ. Pinnæ lanceolate, 4-9 inches long, 1-2 inches wide; edges entire; veins anastomosing copiously.

Zambesiland (Synopsis Filicum).

167. *Acrostichum Heudelotii*, Hk.

Fronds subcoriaceous, pinnate; the pinnæ of the fertile frond narrower than those of the barren. Fronds 1-2 feet long, 6-9 inches wide; pinnæ numerous, sessile, entire, $\frac{1}{2}$ - $\frac{3}{4}$ inch wide; veins anastomosing, indistinct.

Zambesiland:—Manganja (Kirk).

168. *Acrostichum aureum*, Linn.

East and Natal (F. of S. A.).

Transvaal:—Near Magalisberg (Sanderson).

Zambesia (Kirk).

Genus XXX. β . *Platyserium*, Desv. Plant epiphytal, the barren fronds few, flat and thalloid, and adpressed to what the plant grows on, rounded or cordate at the base, the fertile fronds rising from the sinus, and fresh plants starting from roots at the margin of the mature barren frond. Fertile fronds simple or dichotomously branched, bearing the sori in patches on the back of the bifurcations. Veins anastomosing more or less in the fertile frond, and freely in the barren frond. South-east Asia and Australia, Tropical Africa and South America.

169. *Platyserium alccorne*, Desv.

Barren fronds few, 3-9 inches wide, rounded, conspicuously veined, those from overlapping plants forming a large thalloid mass 1-3 feet in diameter. Fertile fronds several together, ascending, 2 feet long, up to 3 times dichotomously branched, leathery, glabrous above, white pubescent below. Ultimate segments $\frac{1}{2}$ -1 inch wide, 4-8 inches long, rounded at the point. Sori in brown woolly masses on the lower surfaces of the ultimate segments, or meeting and extending downward where they unite. On immature plants less-divided or simple fertile fronds without sori occur. *P. alccorne* is recorded from Australia, Mascarenes, Seychelles, and South America.

Rhodesia:—Near Massi-Kessi (Holland). Umtali (Mrs. Bennett). Miss Schultz brought plants from Umtali which are now growing in the Natal Botanic Garden, Durban, as also are several allied forms from Madagascar.

170. *Todea barbara*, Moore.

West, East, Natal (F. of S. A.).

Transvaal :—Kloof of Mamotsinri (Burt-Davy 203).

171. *Osmunda regalis*, Linn.

West, East, Kaffraria, Natal (F. of S. A.):—Engcobo (Flanagan 2477).

Transvaal :—Pilgrim's Rest (W. Roe ; Bolus 1732). Shilouvane (Junod 516). Not common, kloofs of mountains (Burt-Davy 206).

Rhodesia :—Mazoe (H. M. Hole). Umtali (J. F. Darling ; Mrs. Bennett). Mr. Edmond's farm near Salisbury (Holland).

172. *Schizæa tenella*, Kaulf.

West, East, Kaffraria, Natal (F. of S. A., except delete *Wood*):—Engcobo Mountain, 1896 (Flanagan 2755).

173. *Schizæa pectinata*, Smith.

West, East, Natal (F. of S. A.):—Near Umbilo Falls (Wood).

Kaffraria :—Port St. John's, 1896 (Flanagan 2529).

174. *Aneimia tomentosa*, Sw.

Natal (F. of S. A.).

Transvaal :—Mr. J. M. Wood has had specimens from Swaziland.

175. *Aneimia anthriscifolia*, Schrad.

Stipe 6 inches long, bearing when fertile 1 barren and 2 fertile divisions. On fertile fronds the barren segment is firmly herbaceous, deltoid, 5–6 inches long, 4–5 inches wide, 3-pinnate or 3-pinnatifid, somewhat fibrillose from long white hairs; ultimate segments toothed; fertile divisions erect, rigid, $\frac{1}{2}$ inch wide, 6 inches long on 3-inch stalks, somewhat tomentose, 3–4-pinnate, the segments narrow, incurved over the sori. Barren fronds rather larger than the barren section of the fertile frond. This is included by Baker as a form of *A. tomentosa*, and considering the latter as a widely distributed and variable species it may be so, but so far as local specimens go this is sufficiently distinct to rank as a species here.

Transvaal :—Barberton (J. M. Wood 7599).

Rhodesia :—Near Umtali (Holland ; Mrs. Bennett).

176. *Aneimia Dregeana*, Kunze.

Kaffraria and Natal (F. of S. A.).

Transvaal :—Marovuni (Burt-Davy 222).

177. *Mohria caffrorum*, Desv.

West, East, Kaffraria, Natal :—Common (F. of S. A.).

Orange River Colony :—Ficksburg (Quail).

Transvaal :—Magalisberg (Zeyher). Near Johannesburg (D. Crawford). Riet-vlei, Belfast, Barberton, Marovuni (Burt-Davy 1936, 328, and 232).

Rhodesia :—Umtali (Darling ; Mrs. Bennett). Matabeleland (Oates). Zambesi highlands (Baker, New Ferns, 115).

178. *Mohria lepiger*a, Baker. (*Nothochlæna lepiger*a, Baker, Jour. Bot., 1884, 53.)

Zambesia :—Mount Dzomba, altitude 6,000–7,000 feet (Sir J. Kirk).

Genus XXXV. β . *Lygodium*, Sw. Stems slender, scandent, bearing alternate fronds, which by being dichotomous near the base appear like two opposite fronds. Capsules in spikes along the edges of ordinary or modified fronds or part fronds, each capsule separately in the axil of an almost marginal infolded involucre, the involucre of each capsule imbricating over that next above.

Widely diffused through Asia, America, Africa, and Australasia.

L. scandens :—Each pinna simply pinnate.

L. Kerstenii :—Each pinna 2-pinnate or more divided.

179. *Lygodium scandens*, Sw.

Underground stem long, black, wiry, slender, repeatedly branched, rooted abundantly and clothed with shining black lanceolate scales. Scandent stems slender, hard, wiry, glabrous, unbranched, many feet in length, and producing alternate glabrous fronds, 3–6 inches apart. Primary petiole 2 lines long, ending in an abortive scaly bud, and bearing two divaricate pinnae, each 3–6 inches long and simply pinnate. Pinnules jointed on to the short petioles, variable in form, 1–1½ inches long, ½–1 inch wide below, rounded, cordate, or lobed at the base, and tapering to the rounded apex. Margin crenulate, and in the fertile fronds bearing several irregular segments 1–6 lines long, 1–3 lines wide, several or all of which are modified into capsule-bearing spikes. Terminal pinnule usually forked. This species, which occurs in Eastern Asia, Eastern Australia, Australasia, and Tropical Africa, has several forms ; our plant differs considerably from the form most common in cultivation.

Natal :—Zululand, R. D. Lyle, January, 1899 (Wood 7335,

Natal Government Herbarium 7982 and 7752). Maputa, Amatongaland (Forester Sehof. 1902).

180. *Lygodium Kerstenii*, Kuhn. (= *L. subulatum*, Bojer).

Stem wiry, scandent. Frond glabrous, dichotomously branched at the base, each pinna bipinnate or more divided; pinnules not articulated, 1-3 inches long, crenate, lobed along the margin, 3-fid or with large lobes at the base. Lower pinnules 3-5-lobed, the central lobe largest. Fertile fronds scarcely different from the barren, except that they bear the short narrow spikes all along the margin.

Madagascar and East Africa.

Rhodesia:—Mr. Holland's specimens from Waterfall at Penhalanga are the barren base-fronds from non-climbing stems, and consequently, as occurs throughout the genus, larger and more flabellate than those which occur on the climbing stems. Mrs. Bennett also sends from Umtali similar specimens which she states have not got beyond that state during three years' cultivation, but she also sends beautiful scandent specimens, fully fertile, from the natural habitat.

181. *Marattia fraxinea*, Smith.

West, East, Kaffraria, Natal (F. of S. A.):—Insinuka, Port St. John's, with lobed pinnules (Flanagan 2476).

Transvaal:—Drakensberg (McLea). Marovuni (Burt-Davy 233). Haenertsberg (Eastwood).

Rhodesia:—Umtali (J. F. Darling; Mrs. Bennett). Penhalanga (Holland).

182. *Ophioglossum Bergianum*, Schl.

R. Schlechter, who collected this in 1892 in several localities near Cape Town, distributed specimens, considering that his 989 was typical *O. Bergianum*, Schl., and that his 1017 and 1058 were a variety of the same, which he named var. *Harveyanum*. The latter, however, are Schlechtendal's *O. Bergianum*, as figured in Hooker's "Icones Plantarum," Plate 263, and by me in "Ferns of South Africa," Plate 143, and corresponds with Harvey's and Pappe's specimens. The name var. *Harveyanum* must therefore sink. These specimens are from Table Mountain, above Orange Kloof, 700 to 1,200 feet altitude, and from moist sandy ground near Wynberg, 80 feet altitude, and Schlechter's 10843 collected at Lammkraal, Clanwilliam, in 1897, also belongs to this.

183. *Ophioglossum lusitanicum*, Linn.

Schlechter's 989, mentioned above, does not, however, belong to *O. Bergianum*, the barren and fertile fronds being united at the base, and the barren frond wider than in that species. It belongs to *O. lusitanicum*, L., being one of its smaller varieties. Fertile frond $\frac{3}{4}$ – $1\frac{1}{2}$ inches high, including the spike, which is $\frac{1}{3}$ inch long, with about 6 pairs of capsules, and surmounted by a flattened leafy point. Barren frond rising from the fertile above the base, shortly petioled, $\frac{1}{2}$ – $\frac{3}{4}$ inch long, 2 lines wide, linear-lanceolate. Roots few, fleshy; rootstock not descending. Mediterranean, West Africa, India, Australia, and New Zealand; probably often overlooked.

Western Province:—Constantiaberg, near Hout Bay, altitude 250 feet (Schlechter 989).

184. *Ophioglossum nudicaule*, Linn. f.

Rootstock descending, fleshy; roots numerous. Fronds several, the barren segment ovate, $\frac{3}{4}$ –1 inch long, $\frac{1}{2}$ inch wide, shortly stalked, rising from the lower portion of the fertile peduncle which is 1– $1\frac{1}{2}$ inches long, slender, and bearing a $\frac{1}{3}$ -inch spike of 6–7 pairs of capsules surmounted by a small acute point.

Differs from *O. vulgatum* in its small size, in having the fertile and sterile segments united near the base, and in the barren segment being more distinctly stalked.

O. nudicaule, L. fil.; *O. capense*, Schl.; var. β . *nudicaule*, Schl. Adumb. 9.

Widely distributed in America, Australia, Asia, and Africa.

Western Province:—Lammkraal, Clanwilliam, 1,000 feet, August, 1897 (R. Schlechter 10842).

185. *Ophioglossum vulgatum*, Linn.

West, East, Kaffraria, and Natal (F. of S. A.).

Transvaal:—Magalisberg (Burke).

186. *Ophioglossum reticulatum*, Linn.

Natal (F. of S. A.).

Rhodesia:—Zambesiland (Kirk).

FERN ALLIES.

187. *Equisetum ramosissimum*, Desv.

West, East, Kaffraria, Natal (F. of S. A.):—Centocow, Natal (T. R. Sim).

Transvaal:—Many localities (J. Burt-Davy).

Rhodesia:—Zambesi (Kirk).

188. *Lycopodium saururus*, Linn.
West and Natal (F. of S. A.).
189. *Lycopodium verticillatum*, Linn.
Kaffraria and Natal (F. of S. A.).
Transvaal:—Macamac (McLea 31). Houtbosch 6,800 feet.
(Schlechter 4757).
Rhodesia:—Umtali (Holland).
190. *Lycopodium gnidioides*, Linn.
West, East, Kaffraria, Natal (F. of S. A.).
Transvaal:—Macamac (McLea). Houtbosch, 6,800 feet.
(Schlechter 4758).
191. *Lycopodium dacrydioides*, Baker.
Closely allied to *L. gnidioides*, and not known to me, but
from description appears to have simple instead of
forked spikes, narrower and longer leaves, up to
 $\frac{3}{4}$ inch long, and rather longer bracts than that
species.
“Mountains of Transvaal, Natal, Zambesiland, Cameroons,
Fernando Po, and St. Thomas” (Baker, “Fern Allies,”
p. 18).
192. *Lycopodium cernuum*, Linn.
West, East, Kaffraria, and Natal (F. of S. A.):—Hilton Road,
Natal (T. R. Sim).
193. *Lycopodium clavatum*, Linn.
West, East, Kaffraria, and Natal (F. of S. A.):—Sweetwaters,
Natal (T. R. Sim).
Transvaal:—Macamac (McLea). Sabie Falls to Pilgrim's
Rest (Burt-Davy 432). Barberton (Burt-Davy 558).
194. *Lycopodium carolinianum*, Linn.
West, East, Kaffraria, and Natal (F. of S. A.).
Transvaal:—Magalisberg (Burke).
195. *Psilotum triquetrum*, Swartz.
Natal (F. of S. A.):—Near Murchison, Alfred Co. (Wood
2429).
196. *Selaginella pumila*, Spring.
West and Natal (F. of S. A.).
197. *Selaginella rupestris*, Spring.
East, Kaffraria, Natal (F. of S. A.).
Orange River Colony:—Ficksburg (Quail).
Transvaal:—Houtbosch (Dr. Rehmann 5576). Marovuni,
Crocodile and Magalies Rivers, and Forbes Reef, Swazi-
land (Burt-Davy 14, 199, 2794).
Rhodesia:—Near Tette, Zambesia (Peters).

198. *Selaginella depressa*, A. Br.

This is now found to be not uncommon in Natal, growing alike on the exposed rock surfaces on the top of the Zwartkop and on the damp rocks around waterfalls and forest streams.

Cape (Thunberg; Menzies).

Kaffraria:—Mount Fletcher (T. R. Sim).

Natal (McKen):—Inanda and Town Hill (Natal Government Herbarium). Zwartkop (Stayner). Sweetwaters, Bulwer, &c. (T. R. Sim).

199. *Selaginella Kraussiana*, A. Br.

East, Kaffraria, and Natal (F. of S. A.).

Transvaal:—Pilgrim's Rest (McLea).

Rhodesia:—Umtali, 1892 (J. F. Darling).

200. *Selaginella integerrima*, Spring.

Transvaal:—Magalisberg (Sanderson; see F. of S. A.).

201. *Selaginella tectissima*, Baker.

Transvaal:—Magalisberg (Sanderson).

202. *Selaginella Cooperi*, Baker.

Orange River Colony (Cooper 1056).

203. *Selaginella Mackenii*, Baker.

Natal (F. of S. A.).

204. *Selaginella imbricata*, Spring.

Zambesiland (Baker, "Fern Allies," p. 87).

205. *Selaginella* (species).

This is mentioned in "Ferns of South Africa," p. 262. Since then Mrs. Bennett has sent in the same species from the same district—Umtali—but unfortunately not yet in condition for identification.

206. *Azolla pinnata*, R. Br.

Cape and Natal (F. of S. A.).

207. *Isoetes natalensis*, Baker.

Natal (F. of S. A.).

208. *Isoetes Wormaldii*, Sim (New Species), Pl. V.

Rootstock 3-lobed; leaves 50 to 70, ligulate-terete or somewhat flattened, 9–18 inches long, 1 line diam., hardly narrowed to the rounded point, flaccid, rising to the surface, then floating. No stomata on the submerged parts; floating parts dark green and grass-like. Veins one central and one marginal on each side throughout. Membranous leaf-base dilated and its margins enclosing and half-covering the sporangium, which is axillary, usually produced in the axil of every leaf, $\frac{1}{3}$ inch long,

$\frac{1}{8}$ inch wide, membranous, containing numerous macrospores or microspores. Microspores white, 3-ridged, tubercular.

In ponds around East London, and in the Victoria Park, East London. First found by Mr. W. H. Wormald, December, 1893 (T. R. Sim 1567).

209. *Marsilia Burchellii*, A. Br.

“Cape Colony as far north as the Transvaal” (Baker, “Fern Allies,” 144).

210. *Marsilia biloba*, Willd.

East (F. of S. A.).

211. *Marsilia capensis*, A. Br.

West, East, Kaffraria, Natal (F. of S. A.).

212. *Marsilia macropoda*, Presl.

Cape, Kaffraria, and Natal (F. of S. A.).

Transvaal:—Pretoria (Dr. Rehmann). Mooi River ditches at Potchefstroom (Burt-Davy 1027).

Variety, Springbokflats, common in vleys (Burt-Davy 1746).